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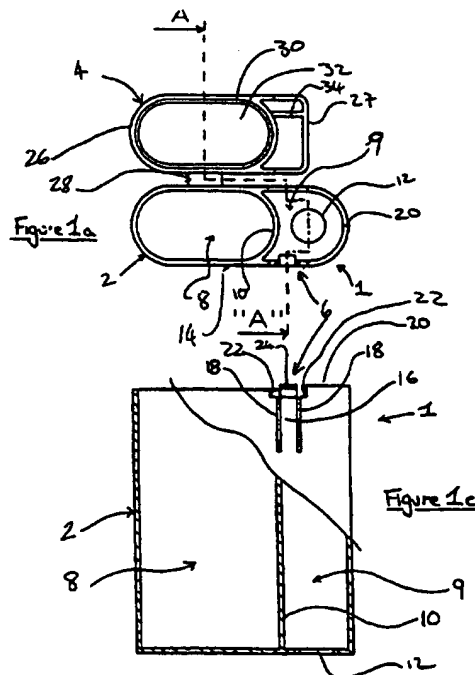
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GB 2082552 A GB 1527812 A EP 0006512 A1
US 5575399 A US 5267668 A US 4890742 A

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45/22 45/28 50/00 50/02 50/04 77/28
Online: WPI

(54) Container comprising child resistant means

(57) A child resistant container, especially for pharmaceutical products, has a closure 4 hinged to the body 2. The body has a cantilever child proofing latch device 16 defined in the vertical side wall of the body of the container, by two slots 18 extending down from the top rim of the container. The distal end of the cantilever has a 'C' shaped formation 24 which receives a co-operating part of the closure 4. In the embodiment shown the container has two chambers 8,9 the first for containing the pharmaceutical product and the second, 9, for containing literature relating to the product. The two chambers are separated by a curved internal wall 10. Chamber 9 has a hole in its base through which an implement can be poked to push the literature item out of the top of the container. In other embodiments the container simply comprises a single chamber into which the literature and product may be placed, the latter optionally being in blister pack form. In yet another embodiment each chamber of the two chamber container has its own closure and child proofing device.



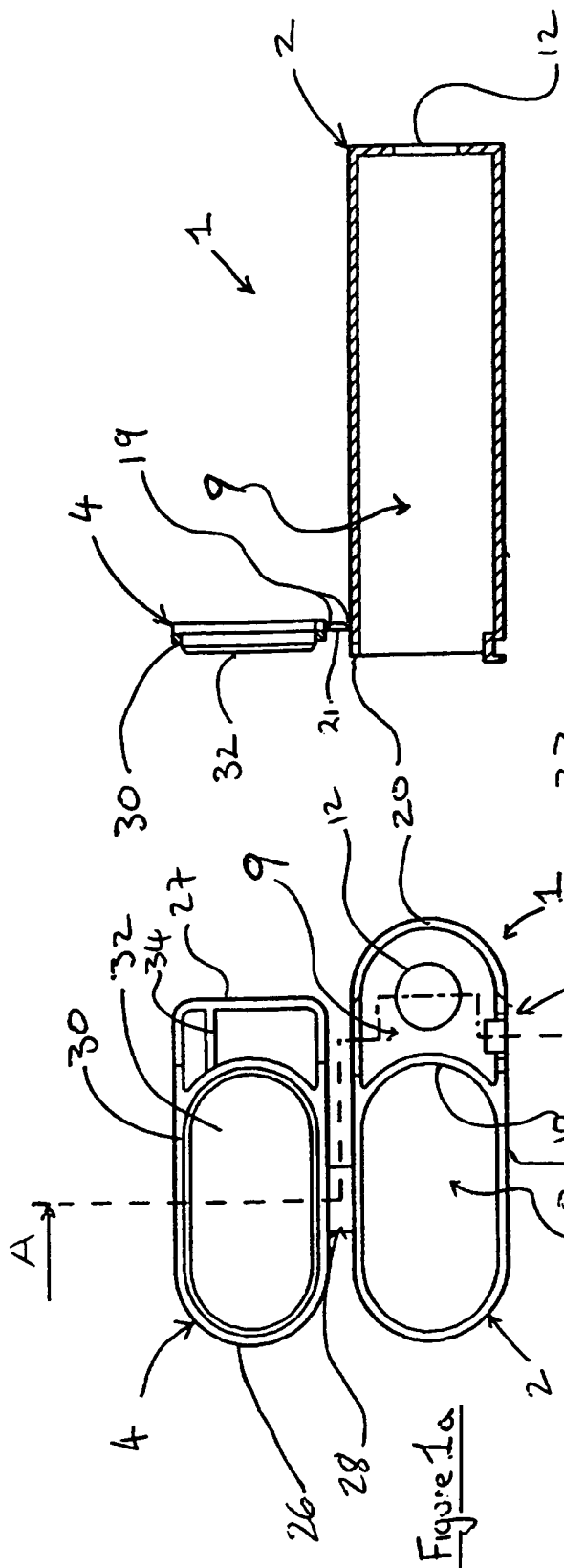


Figure 1b

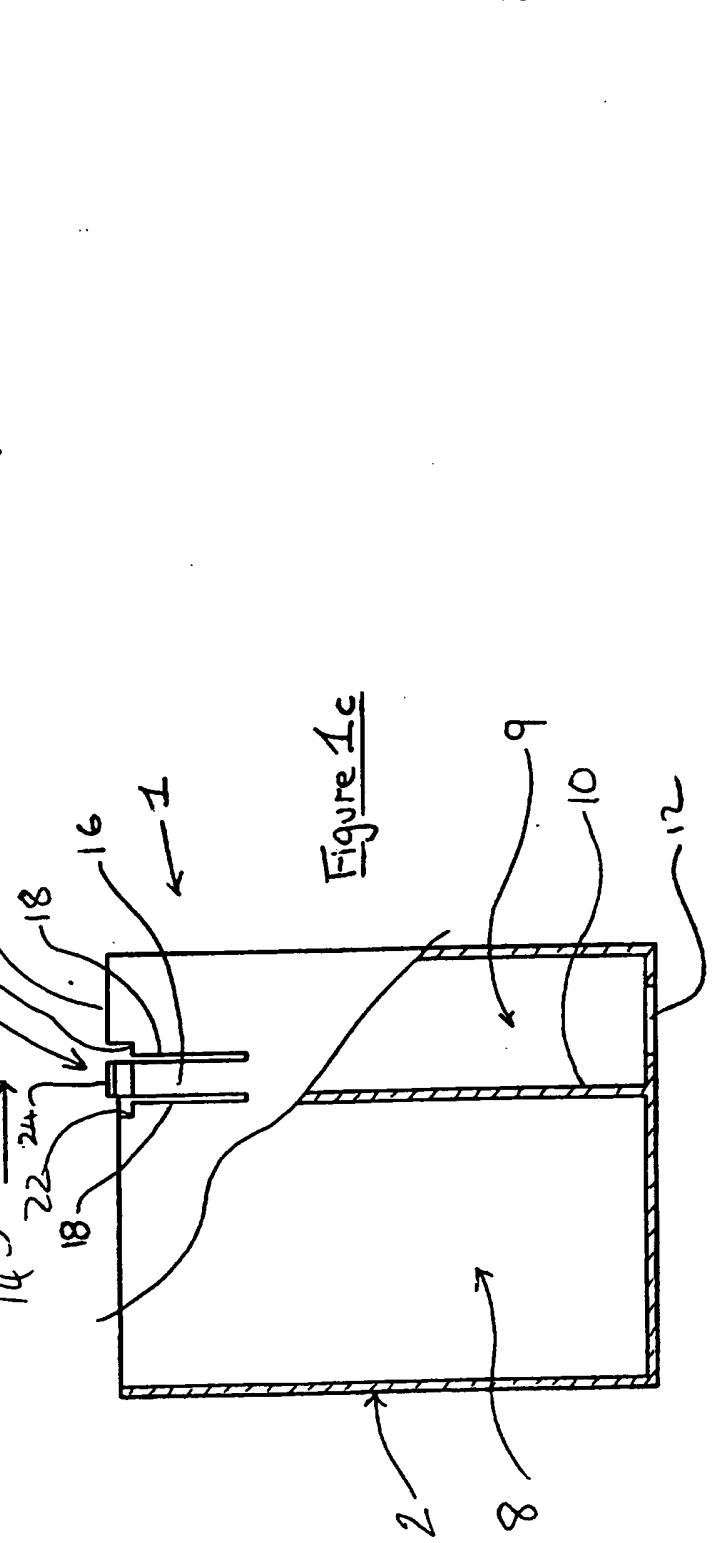
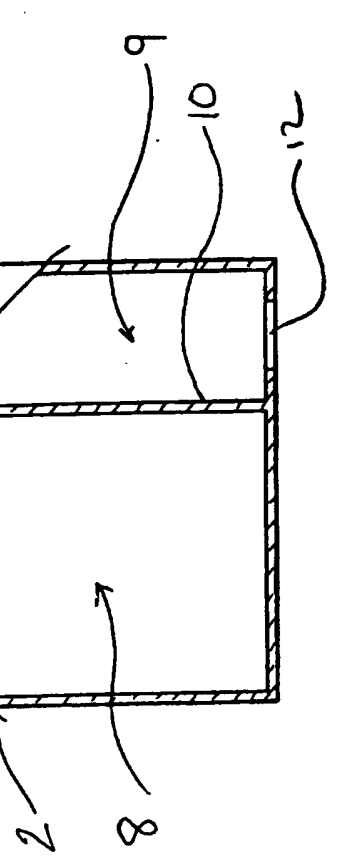
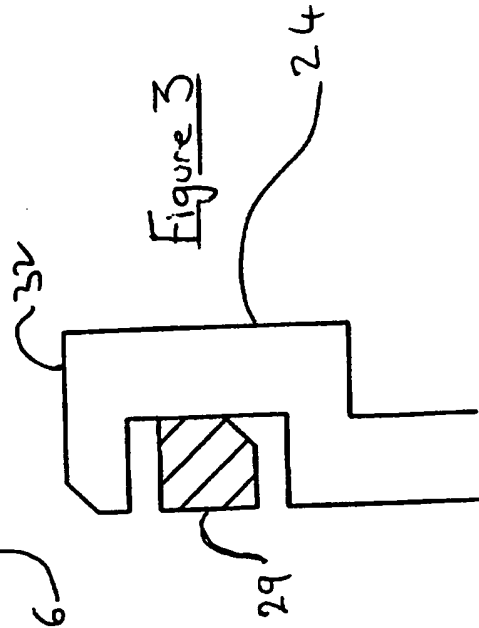
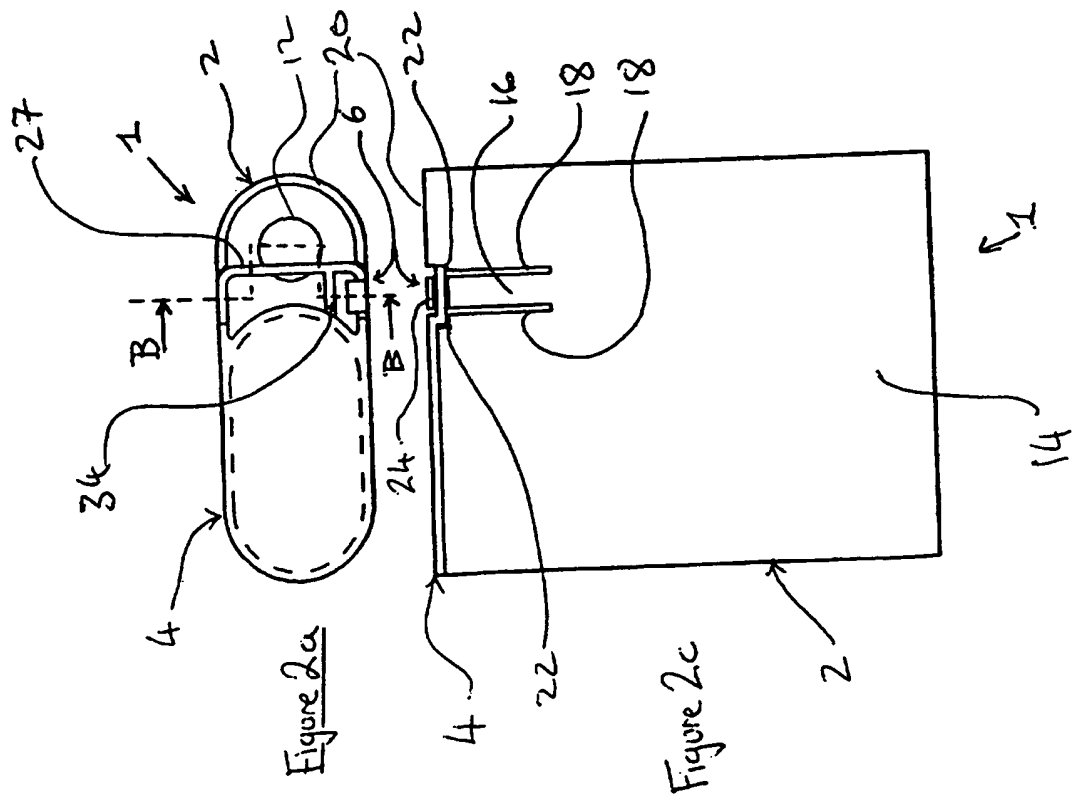
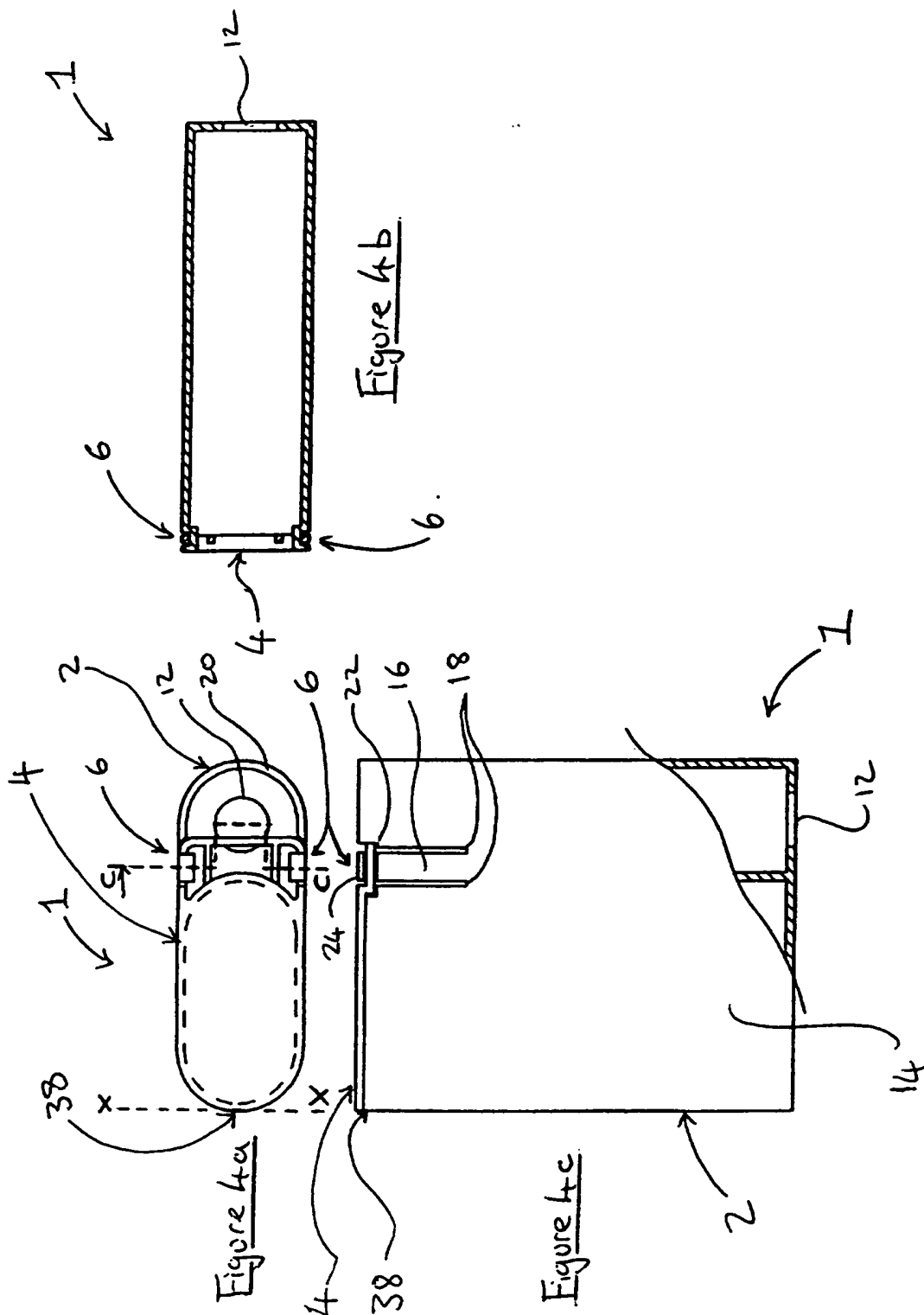
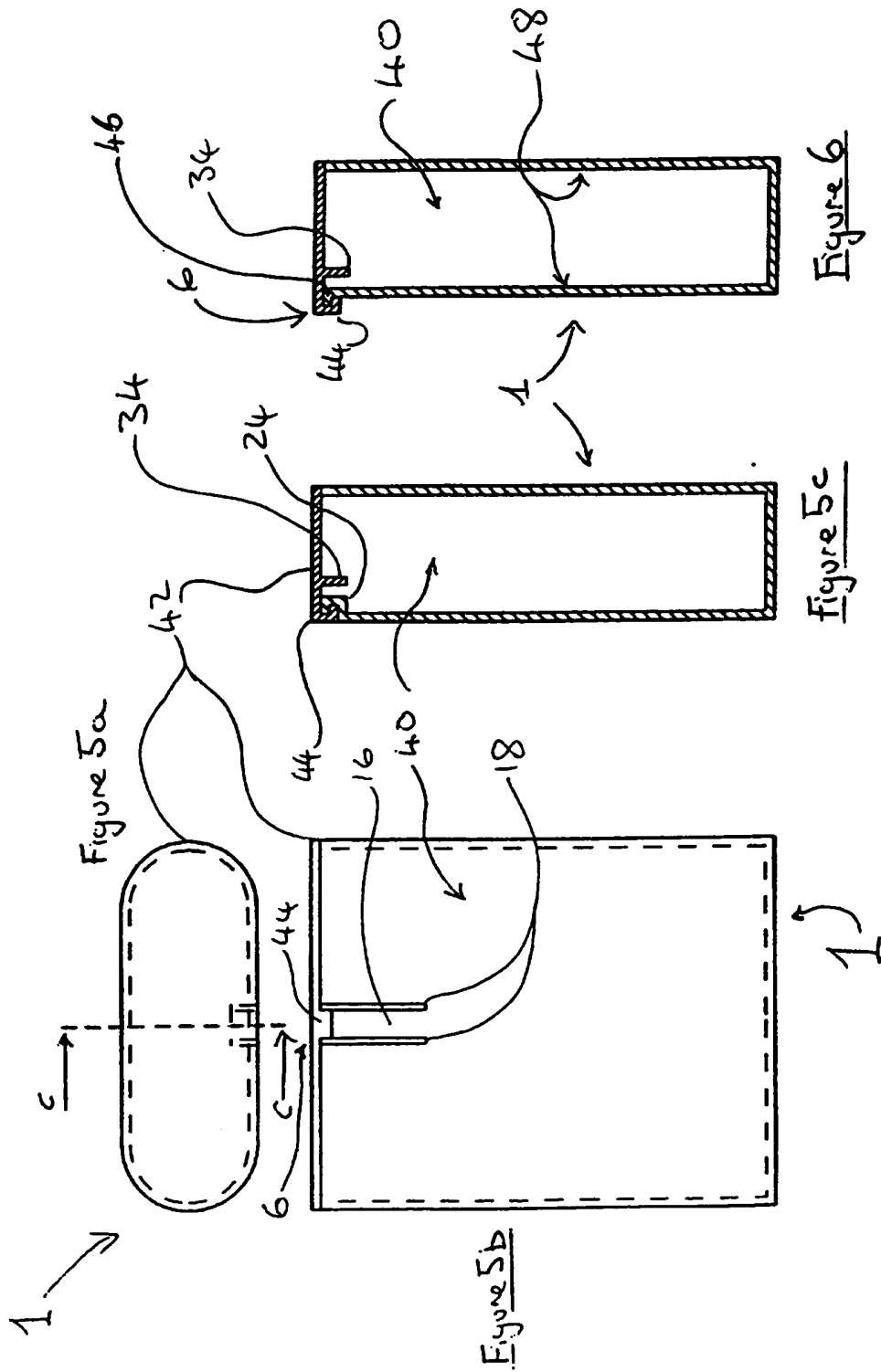


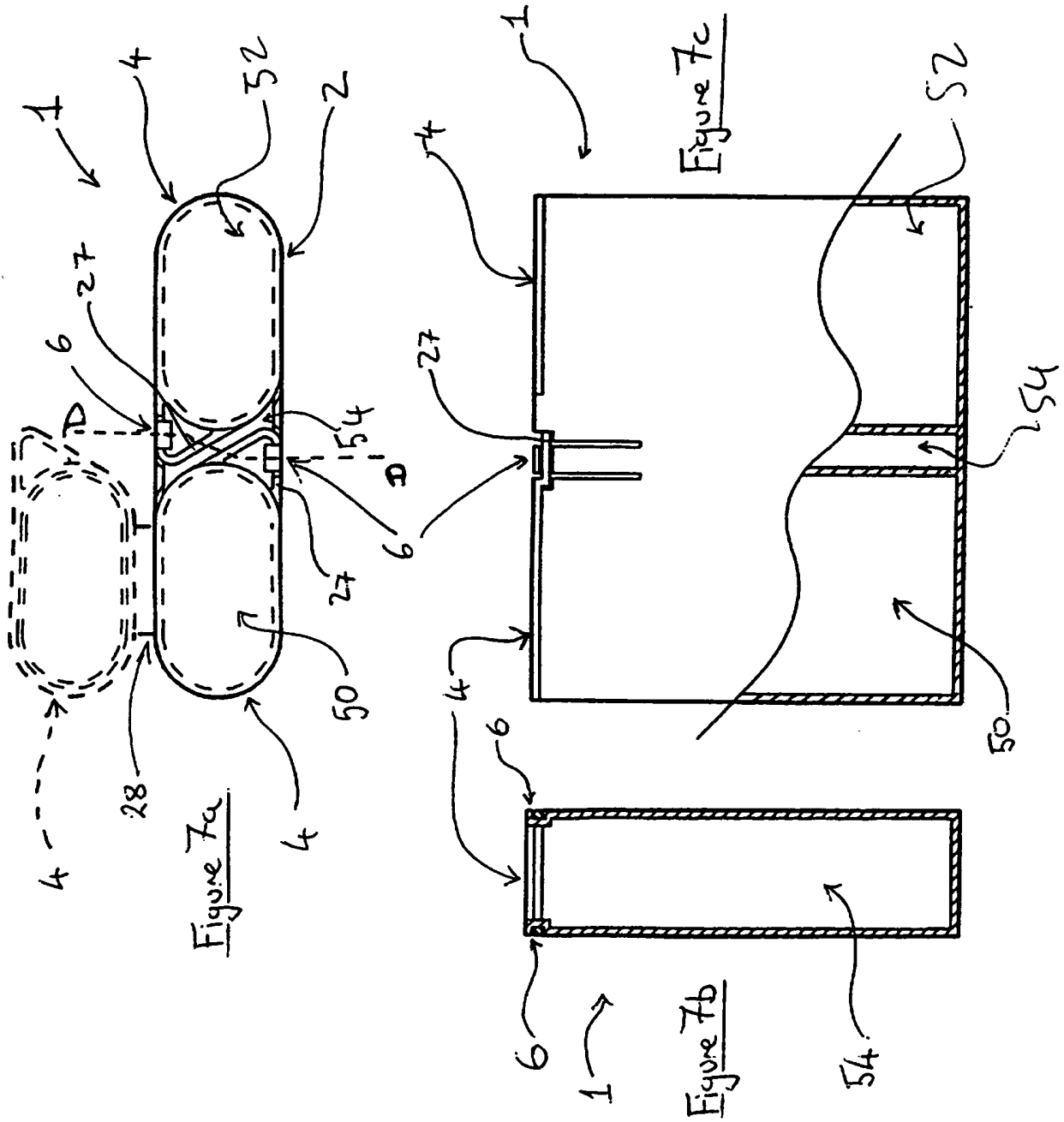
Figure 1c

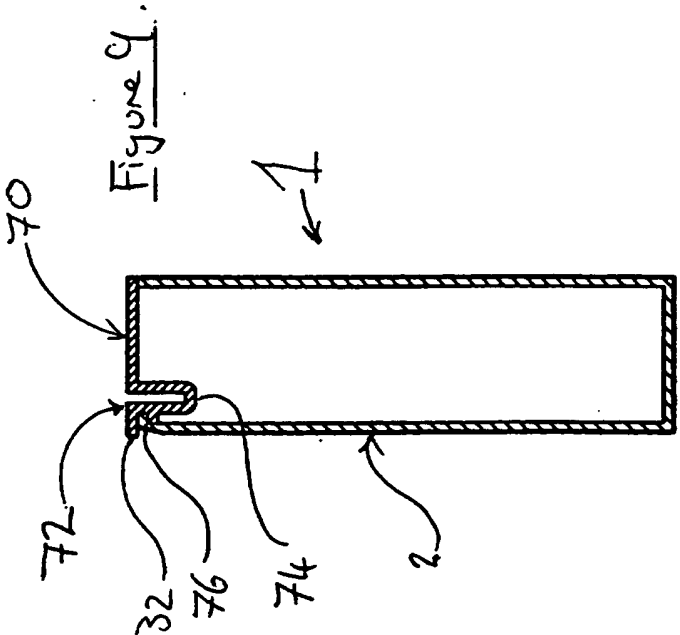
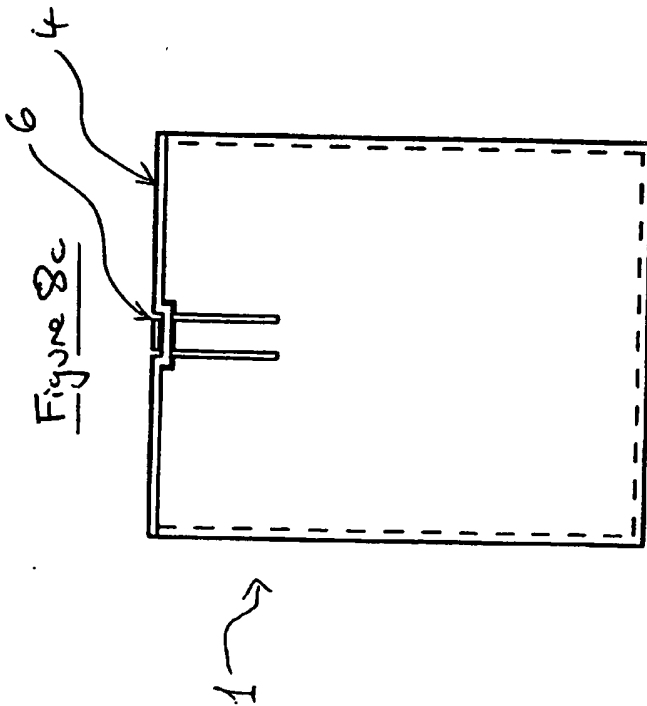
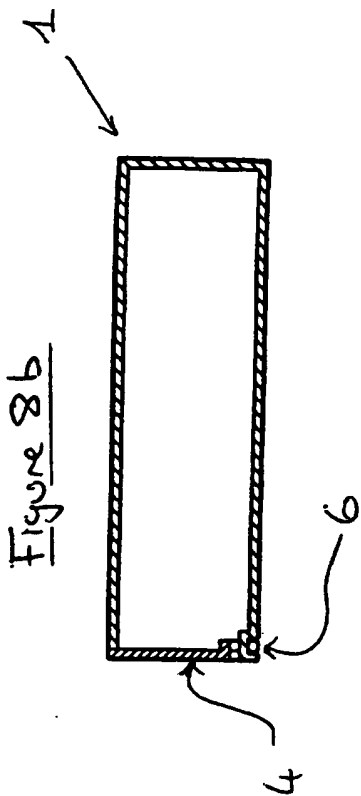
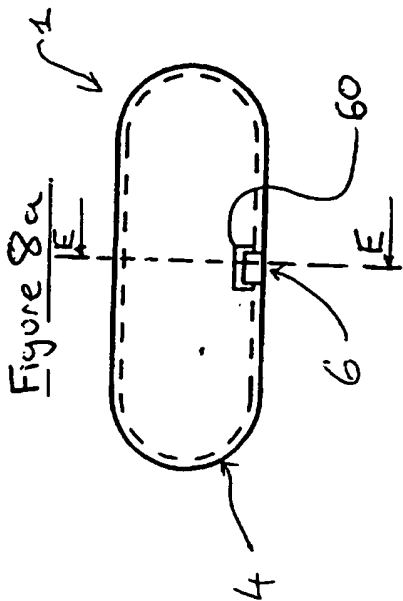












CONTAINER COMPRISING CHILD-RESISTANT MEANS

The present invention relates to containers and is concerned particularly, but not exclusively, with tablet containers comprising child-resistant means and integral product information storage means.

Present pharmaceutical products such as pills, tablets and capsules can be packaged in primary and secondary containers. The primary container is in the form of blister packs which contain the tablets in recesses of plastic panels. The panel has a metal foil bonded to the upper surface. The primary container may also be in the form of strip packs wherein two foil sheets encase the pharmaceutical product therebetween. A number of these blister packs are contained within a secondary container. This secondary container is in the form of a cardboard box. The box carries important information regarding the type of tablets contained therein and the correct use of the tablets. Due to the flimsy construction of the boxes the tablet panels tend to fall out of the box if crushed and can become separated from the important information contained on the box.

It is common for the public to store pharmaceutical products in one place such as in cupboards or drawers. There is a danger that when the primary and secondary containers become separated the patient may place the primary container into the wrong secondary container. Different patient prescription information would then be associated with the incorrect tablets. An elderly patient taking more than one type of tablet would be vulnerable to mixing up the containers. The primary and secondary packaging can also be removed and swapped whilst being displayed on supermarket shelves by malicious tampering.

Since the introduction of the 'Patient Pack Initiative' and Original Pack Dispensing (OPD), there is now a requirement for the patient to have more product information. This information is in the form of a folded paper leaflet housed within the secondary container.

5

Many pharmaceutical products are expected to be used throughout the day by the patient and are carried in pockets, handbags or cases whilst travelling. The product packaging experiences less than ideal conditions and may be exposed to excessive moisture as well as crushing. The present
10 secondary packaging carrying the prescription information is unable to withstand such harsh conditions and, if the packaging becomes excessively damaged, wet or illegible, it may be discarded entirely.

The term tablet is used herein to include a capsule and a pill.

15

According to a first aspect of the present invention there is provided a child-resistant container comprising a container body adapted to house a product and product literature, a closure and child-resistant means comprising resilient cantilever means, so arranged as to secure the closure
20 in a closed condition to the container body, in which condition the closure retains the product and product literature in the container body.

Preferably the product is a pharmaceutical product and the product literature is pharmaceutical product literature.

25

Preferably the container body is integrally formed with the resilient cantilever means.

Preferably the resilient cantilever means comprises a resilient cantilever beam formed such that the free end of the beam interlocks with a co-operating part of the closure.

- 5 The cantilever means is releasably operated by the application of a force by the user so causing a deflection of the beam.

Preferably the closure is attached to the container body by hinge means. The interlocking part of the cantilever beam is preferably formed with a C-shaped portion substantially at the free end, and being shaped to receive the co-operating part of the closure wherein, in use, when the C-shaped portion is in a retaining state the said portion prevents the removal of the closure and, when the C-shaped portion is in an operative state, the said C-shaped portion is held clear of the closure portion such that the closure is removable.

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The cantilever means is preferably integrally formed with the container and is defined by two slots formed in a wall section of the container.

- 20 The container is preferably manufactured in a single unit by an injection moulding process. Alternatively the tablet container is manufactured in a plurality of parts. The tablet container is preferably manufactured in two parts comprising a container body and separate closure and said two parts being joined together in use by a hinge means.

25

The hinge means preferably comprises two hinges and a lamina strip therebetween. The two hinges preferably comprise substantially parallel grooves defining respective hinge webs, one web connecting the container to the strip and the second web connecting the strip to the closure.

The hinge is preferably on the opposite side of the tablet container to the side of the container on which the locking means is disposed.

5 According to a second aspect of the present invention there is provided a child-resistant container comprising a container body, a closure and child-resistant locking means adapted to lock the closure in a closed condition, and the container body defining two chambers suitable to house, in use, pharmaceutical products in the first chamber and pharmaceutical product literature in the second chamber.

10

Preferably the locking means comprises a resilient cantilever means.

The information can be printed on labels, booklets or equivalent information carrying means.

15

The closure may sealably close both chambers.

Alternatively, the closure comprises two parts, the first part closing the first chamber and the second part providing retaining means for the
20 information carrying means. The second part is preferably in the form of a frame extending from the first part, wherein in use, when the closure is held by the cantilever means the frame prevents the information carrying means from being removed from the second chamber.

25 When the closure comprises an integral frame, the child-resistant means preferably engages with the frame.

The child-resistant means preferably also comprises tamper evident means comprising frangible nibs disposed in the slots and connecting the beam to

the container body, wherein in use the nibs are broken to allow the first opening of the closure from the container body. Alternatively, the tamper evident means comprises a frangible web, wherein in use the web is broken to allow the first opening of the closure from the container body.

5

It will be appreciated that the container can also comprise tamper evident means and tamper resistant means such as a plastic film encasing the closure such that the film has to be torn and removed to allow access to the closure and subsequently the product in the container.

10

By tamper resistant and tamper evident we mean a container that cannot be opened for the first time without leaving obvious evidence that the closure has been opened.

15 The container is preferably made from a plastics material.

In a third aspect of the present invention the container comprises child-resistant means comprising a plurality of such cantilever means. Preferably the container comprises two cantilever means being disposed on opposing sides of the container with respect to each other wherein in use both of the cantilever means have to be operated to allow the closure to be removed.

20

In a fourth aspect of the present invention the container comprises a plurality of chambers, a plurality of cantilever means, a plurality of closures, a plurality of hinges wherein, in use, the cantilever means can be operated independently to allow the respective closure to be opened

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Preferably the container then comprises two product chambers and one product literature chamber; two closures each comprising two parts, the

first part closing a respective product chamber and both the second parts providing retaining means for the product literature chamber; two cantilever means and two hinge means whereby, in use, the cantilever means can be operated independently to allow the respective closures to be
5 opened.

According to a fifth aspect of the invention a child-resistant container for containing a pharmaceutical product comprises a container body which comprises a partition defining adjacent first and second chambers which
10 are both open to one end of the body, a closure comprising a first closure part adapted when in a closed condition sealably to close the open end of the first chamber, which can be used to contain the pharmaceutical product, and a second closure part adapted when in said closed condition to obstruct the open end of the second chamber which can be used to contain
15 pharmaceutical product literature, and a child-resistant retaining means adapted to retain the closure in the closed condition on the body.

According to a sixth aspect of the invention a child-resistant container comprises a container body defining a chamber for containing a
20 pharmaceutical product which is contained in a blister pack or the like, the container body being open at one end to permit the blister pack to be removed from the container body, a closure which is adapted to close the open end of the body, a child-resistant means adapted to retain the closure in a closed condition on the container body, the child-resistant means
25 comprising a resilient cantilever means.

The pharmaceutical product literature may be displayed on the outermost surface of a container in accordance with the sixth aspect of the invention.

It will be appreciated that the outermost surface of a container in accordance with any of the aspects of the invention may bear product information such as the product name and associated sales information and/or additional product literature.

5

Various embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

- 10 Figure 1a shows a plan view of a tablet container and illustrates the tablet container in the open state,

Figure 1b is a section on the line A-A of Figure 1a,

- 15 Figure 1c is an elevation of the tablet container of figure 1a in the open state and partly cut-away to illustrate the two chambers,

Figure 2a shows a plan view of the tablet container of Figure 1a in the closed state,

20

Figure 2b is a section on the line B-B of Figure 2a,

Figure 2c is an elevation of the tablet container of Figure 2a in the closed state,

25

Figure 3 shows a detailed view of the resilient cantilever beam of the container of Figure 1a,

Figure 4a is a view similar to Figure 2a but of a second embodiment in the form of a tablet container comprising two locking means,

Figure 4b is a section on the line C-C of Figure 4a,

5

Figure 4c is an elevation of the tablet container of Figure 4a in the closed state and part cut-away to illustrate the two chambers,

10 Figure 5a shows a plan view of a further embodiment of the present invention, the tablet container being shown in the closed state and comprising only a single chamber,

Figure 5b is an elevation view of the embodiment of Figure 5a,

15 Figure 5c is a section on the line C-C of the embodiment of Figure 5a,

Figure 6 is a section similar to that of Figure 5c but showing a modified child-resistant means,

20 Figure 7a shows a plan view of a further embodiment of the present invention in the form of a tablet container comprising two chambers each chamber having as associated child-resistant means and closure, and a product information chamber,

25 Figure 7b is a section on the line D-D of Figure 7a,

Figure 7c is an elevation of the container of Figure 7a and part cut-away to show part of the three chambers,

Figure 8a is a plan view of another embodiment of the present invention,

Figure 8b is a section on the line E-E of Figure 8a,

5 Figure 8c shows an elevation view of the container of Figure 8a, and,

Figure 9 shows yet another embodiment of the present invention to illustrate a different child-resistant assembly.

10 Referring to Figures 1a, 1b, 1c, 2a, 2b and 2c a child-resistant container 1 comprises a container body 2, a closure 4 and a child-resistant locking means 6.

The container 1 is formed in a single unit by an injection moulding process
15 and is made from a substantially semi rigid plastics material.

The container body 2 defines a first chamber 8 and a second chamber 9. The two chambers 8, 9 are separated by an intermediate curved wall 10 disposed therebetween. The base of the second chamber 9 is formed with a
20 circular hole 12. The second chamber 9 is also provided with the child-resistant means 6 disposed at the upper region of the vertical side 14. The child-resistant means 6 comprises a cantilever beam 16 defined in the vertical side wall of the chamber 9 by two substantially parallel slots 18 extending downwardly from the uppermost rim 20 of the chamber 9. Each
25 slot 18 is formed with a step 22 at the upper end thereof. The uppermost end of the cantilever 16 comprises a C-shaped catch 24 being formed to receive a co-operating part of the closure 4.

The closure 4 comprises a substantially flat lozenge-shaped lid section 26 and a frame section 27 extending therefrom, the closure 4 being formed such that it is pivotally mounted about the hinge means 28. The hinge means comprises two grooves 19, Figure 1b, and a strip 21 disposed therebetween. The hinge arrangement is such that a web defined by one of the grooves 19 joins the closure 4 to the strip 21, and a second web defined by the second groove joins the strip 21 to the container body 2. When the closure is in the closed state, as shown in Figures 2a, 2b and 2c, the lid section 26 closes the first chamber 8 and the frame section 27 provides a retaining means for the contents of chamber 9. The perimeter of the lid section 26 is formed with a stepped margin 30 surrounding an inner margin 32.

When the closure is in the closed state the stepped margin 30 rests on the rim 20 and the inner region 32 is disposed as a plug within the upper end of chamber 8, the arrangement being such that the frictional contact between the closure 4 and the container 2 provides a substantially fluid tight seal.

In use the first chamber 8 contains pharmaceutical products and desirably these are in the form of loose tablets, and the second chamber contains the printed literature in connection with the product. The closed container provides protection to the contents from the less than ideal conditions to which the container may be exposed whilst it is being carried by the patient.

When the closure 4 is in the closed state the frame 27 prevents the literature from falling out of, or being removed from, the chamber 9.

In the closed state the frame 27 is held within the stepped region 22 by the retaining means 6 in a retaining state. The C-shaped catch 24 abuts a part 29 of the frame 27.

- 5 The uppermost horizontal section 32 of the C-shaped catch 24 prevents the closure 4 from being lifted from the upper rim 20. The retaining means 6 is released by applying force on the beam 16 so causing a deflection of the said beam inwardly with respect to the container. As the beam moves inwardly the C-shaped catch 24 moves away from the part 29 such that the
- 10 closure can be urged away from the container. The frame 27 is formed with a back stop section 34 which prevents the C-shaped catch 24 being moved too far inwardly, so preventing the beam 16 from being deflected beyond its elastic limit.
- 15 In the open state, as shown in Figures 1a, 1b and 1c, the frame 27 is disposed clear from the chamber 9 allowing access to the printed literature located inside chamber 9, and also allowing access to the product located inside chamber 8.
- 20 To aid the retrieval of the literature the patient can place a finger or appropriate tool through the hole 12 at the base of the chamber 9 and push the literature upwards so exposing the uppermost part above the rim 20 and allowing the literature to be grasped and removed.
- 25 Figures 4a, 4b and 4c show an embodiment of the present invention substantially the same as that described with reference to Figures 1a, 1b, 1c, 2a, 2b, 2c of the accompanying drawings and therefore like numerals have been applied to like components and further description will not be given.

However, with this embodiment the tablet container 1 comprises two child-resistant means 6 disposed on opposing sides of the container 2. For this embodiment the hinge means is disposed at an end 38 of the container such that the closure rotates about the axis XX. The two child-resistant means 6
5 provide a greater amount of security. It is necessary for both prevention means 6 to be in the released state to allow the closure to be lifted.

Figures 5a, 5b and 5c show a further embodiment of the present invention substantially the same as that described with reference to Figures 1a, 1b,
10 1c, 2a, 2b, 2c and Figure 4 of the accompanying drawings and therefore like numerals have been applied to like components and further description will not be given. However, with this particular embodiment the tablet container 1 defines only a single lozenge-shaped chamber 40 being shaped to receive a lozenge-shaped closure 42. The closure 42 comprises a
15 C-shaped lug 44 formed to inter-engage with the C-shaped catch 24. The product literature can be stored within the single chamber 42 along with the pharmaceutical product. It will be appreciated that product information is also displayed on the outermost surface of the container.

20 Figure 6 shows a modified child-resistant means 6. With this embodiment the uppermost end of the beam 16 is disposed as a substantially horizontal section 46 extending outwardly of the container from the beam 16 and adapted to be embraced by the C-shaped lug 44. This particular embodiment provides the advantage of not comprising a stepped portion
25 projecting inwardly into the container 40. This feature is desirable for the injection moulding process as the tooling used to form the innermost surface of the container body has an unobstructed passage into and out of the container body.

Referring to Figures 7a, 7b and 7c, these show a further embodiment of the present invention. With this embodiment the container 1 is formed with two lozenge-shaped chambers 50, 52 separated by an intermediate chamber 54. Each chamber 50, 52 is provided with a respective child-resistant means 6 and with a respective closure 4 as hereinbefore described. The container 1 also comprises two hinge means 28 disposed on opposing sides of the container 1. Each closure can be opened independently by operating the respective child-resistant means. The two lozenge-shaped chambers 50, 52 are adapted to contain pharmaceutical products and the intermediate chamber contains the product literature.

Referring to Figures 8a, 8b and 8c these show an embodiment of the present invention in which the closure 4 is formed with a rectangular stepped through port 60. The port 60 is formed such that in the closed state the C-shaped catch 24 co-operates therewith. The container 1 contains pharmaceutical products and desirably these are in the form of strip-packs.

Figure 9 shows the closure 70 formed with the child-resistant means 72. The child-resistant means 72 comprises a U-shaped resilient member 74. The member 74 is formed with the C-shaped catch 32 which is adapted to co-operate with a portion of the container 2. The portion of the container comprises a inwardly extending substantially horizontal section 76. The resilient member 74 urges the C-shaped catch towards the section 76. The child-resistant means is operated by forcing the C-shaped catch 32 away from the section 76 to an extent where the two are no longer in contact. The closure can then be urged away from the container.

CLAIMS

1. A child-resistant container comprising a container body adapted to house a product and product literature, a closure and child-resistant means
5 comprising resilient cantilever means, so arranged as to secure the closure in a closed condition to the container body, in which condition the closure retains the product and product literature in the container body.
2. A child-resistant container as claimed in claim 1 and containing said
10 product and product literature, and wherein the product is a pharmaceutical product and the product literature is pharmaceutical product literature.
3. A child-resistant container as claimed in claim 1 or claim 2, wherein the container body is integrally formed with the resilient cantilever means.
15
4. A child-resistant container as claimed in any one of claims 1 to 3, wherein the resilient cantilever means comprises a resilient cantilever beam formed such that the free end of the beam interlocks with a co-operating part of the closure, and the cantilever means is releasably operated by the
20 application of a force by the user so causing a deflection of the beam.
5. A child-resistant container as claimed in any one of claims 1 to 4, wherein the closure is attached to the container body by hinge means.
- 25 6. A child-resistant container as claimed in claim 4 or claim 5, wherein the interlocking part of the cantilever beam is formed with a C-shaped portion substantially at the free end, and is shaped to receive the co-operating part of the closure wherein, in use, when the C-shaped portion is in a retaining state the said portion prevents the removal of the closure and,

when the C-shaped portion is in an operative state, the said C-shaped portion is held clear of the closure portion such that the closure is removable.

5 7. A child-resistant container as claimed in any one of claims 1 to 6, wherein the cantilever means is integrally formed with the container and is defined by two slots formed in a wall section of the container.

8. A child-resistant container as claimed in any one of claims 1 to 7,
10 wherein the container is manufactured in a single unit by an injection moulding process.

9. A child-resistant container as claimed in any one of claims 1 to 7, wherein the tablet container is manufactured in a plurality of parts.

15

10. A child-resistant container as claimed in claim 9, wherein the tablet container is manufactured in two parts comprising a container body and separate closure and said two parts are joined together in use by a hinge means.

20

11. A child-resistant container as claimed in claim 10, wherein the hinge means comprises two hinges and a laminar strip therebetween.

12. A child-resistant container as claimed in claim 11, wherein the two
25 hinges comprise respective hinge webs defined by substantially parallel grooves, one web connecting the container to the strip and the second web connecting the strip to the closure.

13. A child-resistant container as claimed in claim 12, wherein the hinge is on the opposite side of the tablet container to the side of the container on which the locking means is disposed.

5 14. A child-resistant container comprising a container body, a closure and child-resistant locking means adapted to lock the closure in a closed condition, the container body defining two chambers suitable to house, in use, pharmaceutical products in the first chamber and pharmaceutical product literature in the second chamber.

10

15. A child-resistant container as claimed in claim 14, wherein the locking means comprises a resilient cantilever means.

16. A child-resistant container as claimed in claim 15, wherein the
15 closure sealably closes both chambers.

17. A child-resistant container as claimed in claims 15 and 16, wherein the closure comprises two parts, the first part closing the first chamber and the second part providing retaining means for the information carrying
20 means.

18. A child-resistant container as claimed in claim 17, wherein the second part is in the form of a frame extending from the first part, wherein in use, when the closure is held by the cantilever means the frame prevents the
25 information carrying means from being removed from the second chamber.

19. A child-resistant container as claimed in claim 18, wherein the closure comprises an integral frame, the child-resistant means engaging with the frame.

20. A child-resistant container as claimed in any one of claims 14 to 19,
wherein the child-resistant means also comprises tamper evident means
comprising frangible nibs disposed in the slots and connecting the beam to
the container body, whereby in use the nibs are broken to allow the first
5 opening of the closure from the container body.

21. A child-resistant container as claimed in any one of claims 14 to 19,
wherein the tamper evident means comprises a frangible web, whereby in
use the web is broken to allow the first opening of the closure from the
10 container body.

22. A child-resistant container as claimed in any of the preceding claims,
wherein the container is made from a plastics material.

15 23. A child-resistant container as claimed in any one of claims 1 to 13
and claims 15 to 22, wherein the container comprises child-resistant means
comprising a plurality of such cantilever means.

24. A child-resistant container as claimed in claim 23, wherein the
20 container comprises two cantilever means disposed on opposing sides of
the container with respect to each other wherein in use both of the
cantilever means have to be operated to allow the closure to be removed.

25. A child-resistant container as claimed in claim 5, or any of claims 6 to
25 13, each as appended to claim 5, wherein the container comprises a
plurality of chambers, a plurality of cantilever means, a plurality of
closures, a plurality of hinges wherein, in use, the cantilever means can be
operated independently to allow the respective closure to be opened.

26. A child-resistant container as claimed in claim 25, wherein the container comprises two product chambers and one product literature chamber; two closures each comprising two parts, the first part closing a respective product chamber and both the second parts providing retaining
5 means for the product literature chamber; two cantilever means and two hinge means whereby, in use, the cantilever means can be operated independently to allow the respective closures to be opened.

27. A child-resistant container for containing a pharmaceutical product
10 comprising a container body which comprises a partition defining adjacent first and second chambers which are both open to one end of the body, a closure comprising a first closure part adapted when in a closed condition sealably to close the open end of the first chamber, which can be used to contain the pharmaceutical product, and a second closure part adapted
15 when in said close condition to obstruct the open end of the second chamber which can be used to contain pharmaceutical product literature, and a child-resistant retaining means adapted to retain the closure in the closed condition on the body.

20 28. A child-resistant container comprising a container body defining a chamber for containing a pharmaceutical product which is contained in a blister pack or the like, the container body being open at one end to permit the blister pack to be removed from the container body, a closure which is adapted to close the open end of the body, a child-resistant means adapted
25 to retain the closure in a closed condition on the container body, the child-resistant means comprising a resilient cantilever means.

29. A child-resistant container substantially as herein described with reference to the accompanying drawings.



Application No: GB 9623692.2
Claims searched: 1-13

Examiner: John Wilson
Date of search: 13 March 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): B8C[CWS4]; B8D[DSC2]; B8T[TBM THMX THSB TWC]

Int Cl (Ed.6): B65D 41/16 41/18 43/14 43/16 45/16 45/18 45/22 45/28 50/00 50/02
50/04 77/28

Other: _____

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2082552 A	Johnsen & Jorgensen - see the figs. - resilient cantilever means 8 & 16, p.1 ll.5-8	1-4,7 at least
X	GB 1527812	National Plastics Ltd. - see the figs., p.2 l.85	1-4,7,8, at least
X	EP 0006512 A1	Joachim Czech - see the figs, cantilever means 22,23, ref to injection moulding [einstückigen Kunststoff-Spritzgußteil - single piece injection moulded plastics] at p.6 l.23.	1-5,8 at least
X,E	US 5575399	Intini - see the figs., cantilever means 58 fig.5a	1-5 at least
X	US 5267668	Jones - see the fig. - cantilever means 3	1-5 at least
X	US 4890742	Allison - see the figs. - cantilever means 16, fig.7, col.1 ll.43-45	1-5,8 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.